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ABSTRACT
          This report examines risk and protective factors associated
with adolescent tobacco involvement. Of interest are family contexts, peers,
and individual covariates. Participants were 399 youth, parents, and a
close-in-age sibling. Of the youth, 150 initiated use early (7th, 8th, or 9th
grade), 82 later (10th or 11th grade), and 167 abstained. Employing Cox's
Proportional Hazard Models, youth at greater risk for tobacco involvement
were characterized by male gender, higher deviant values, lower school
performance, and friends and/or siblings who use tobacco. Results for early
users are fairly consistent with the complete sample. For youth who begin in
late adolescence, sibling and peer tobacco use are not significant
covariates, whereas risk factors include low conventional values. Results are
consistent with earlier discriminant function analyses that identified school
performance and friends who are users as predictors of involvement, and
extend that research by separately examining covariates of tobacco use during
early and late adolescence and by examining risk factors associated with
friends who are users. Identification of similar and distinct factors for
early and late initiators highlights the need for specific strategies for
prevention. (EMK)

A Hazard Approach to Understanding Factors Associated with Early and Late Adolescent Tobacco Involvement

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This research examines risk and protective factors associated with adolescent tobacco involvement. Of interest are family contexts, peers, and individual covariates. Participants were 399 youth, parents', and a sibling from a larger longitudinal study of Midwestern families. Of the youth, 150 initiated use early (7th, 8th, or 9th grade), 82 later (10th or 12th grade), and 167 abstained. Employing Cox's Proportional Hazard Models, youth at greater risk for tobacco involvement were characterized by male gender, higher deviant values, lower school performance, and friends and/or siblings who use tobacco. Results for early users (compared to abstainers) are fairly consistent with results for the complete sample. For youth who begin to use tobacco in late adolescence, sibling and peer tobacco use are not significant covariates, whereas risk factors include low conventional values.

INTRODUCTION

Despite recent efforts to curb adolescent smoking and chewing tobacco, such use continues to maintain a fairly constant and high level. In a recent national telephone pole, youth reported cigarettes and marijuana as easier to buy than beer (e.g., at age 12, 57% said cigarettes, 22% said marijuana, and 9% said beer was easiest to buy) (CESAR, October 1996). Research suggests that the earlier the onset of cigarette use, the greater the likelihood of continuing to use tobacco (Graham, Collins, Wugalter, Chung, & Hansen, 1991) and of moving on to use other drugs (Hawkins, Lishner, Catalano, & Howard, 1986; Kandel & Wu, 1995). Given the easy access to tobacco reported by youth and the fact that tobacco use may proceed other drug use, it is important to examine factors associated with tobacco involvement. Furthermore, factors associated with tobacco involvement during early adolescence may differ from factors associated with use that begins during later adolescence. More research is needed to determine the relationships between age and factors associated with drug abuse (Hawkins, Catalano, & Miller, 1992).

PURPOSE

In the present study we examine risk and protective factors associated with timing of tobacco involvement during adolescence using Cox's Proportional Hazard Models (Cox, 1972; Yamaguchi, 1991). We build on earlier discriminant function analyses that identified three characteristics (school performance, peer associations, and sibling tobacco use) that accurately predicted category of adolescent tobacco use (abstainers, desisters, late starters, and continuous

users) for 68% - 80% of youth (Melby & Vargas, 1996). In the present study we ask: (1) What family and individual characteristics are associated with tobacco involvement during adolescence? (2) Do factors associated with tobacco involvement differ for early adolescent users and late adolescent users?

METHOD

Study participants were 399 youth (190 boys, 209 girls), their parents, and a close-in-age sibling. All participated in the Iowa Youth and Families Project, a longitudinal study of 451 primarily lower-middle and middle-class white Midwestern families that began when the youth were in seventh grade and continued through twelfth grade. Except for the eleventh-grade year when only brief phone contacts were initiated by the researchers, family members were interviewed each of the other five years in their own homes. Participants completed questionnaires and were videotaped as they took part in structured family interaction tasks. Missing cases were due to incomplete data on the variables of interest in this study, including lack of participation at all relevant data collection points. The eighth-grade tobacco use rate of 24.2% of males and 13.6% of females in our sample is comparable to the rate of 26.3% for eighth graders reported in the 1993-94 survey by the National Parents' Resource Institute for Drug Education (CESAR, 1995).

For purposes of data analysis, youth were classified as early starters, late starters, or abstainers. *Early starters* were those who reported tobacco use during early adolescence (seventh, eighth, and/or ninth grades, N = 150). *Late starters* reported initial tobacco use at some point during later adolescence (tenth or twelfth grades, N = 82). *Abstainers* were youth who reported no tobacco use during either time period (N = 167). Although we do not distinguish between tobacco experimentation and abuse in our research (see Dobkin, Tremblay, Masse, & Vitaro, 1995), early users are thought to be at greater risk for persistent use (i.e., abuse) (Graham, Collins, Wugalter, Chung, & Hansen, 1991).

Covariates in this study were of several types: tobacco exposure, school performance, youth values, and parents' childrearing behaviors, education and occupational prestige. The tobacco exposure variables included: *father tobacco use* and *mother tobacco use* as measured by their separate reports of using cigarettes, cigars, chewing tobacco, and pipe tobacco; *sibling tobacco use* based on sibling self report of using cigarettes and chewing tobacco; and *peer tobacco use* based on adolescence report on associating with peers who use tobacco. Mothers' and fathers' childrearing behaviors included three composite measures used by: *positive affect* (warmth/support, prosocial, communication, positive reinforcement, encourages independence, and endearment), *negative affect* (hostility, angry coercion, antisocial, and verbal attack), and *child management* (child monitoring, consistent discipline, parental involvement, and quality time) rated by trained observers of a video-recorded parent-child interaction task involving all four family members (Melby et al., 1993). Each behavior was rated on a 5-point scale (from 1 = not at all characteristic, to 5 = mainly characteristic) and items summed to form composite measures (Simons, Johnson, Beaman, Conger, & Whitbeck, 1996). *Adolescent school performance* was based on school reported grades based on a 4-point scale. Two value measures, deviant and conventional, assessed youths' opinions. The d*eviant values* measure was based on 6 items asking how "wrong" it would be for someone the age of the youth to drink alcohol, shoplift, hit someone to hurt them, use marijuana or other illegal drugs, take a car or motorcycle for a ride without the owner's permission, and skip school without an excuse), each rated on a 4-point Likert type scale from *1 = not wrong at all* to *4 = very wrong*. Items were reverse coded so that

higher scores indicated more deviant. The *conventional values* measure was based on 7 items rated on a 5-point Likert type scale from *1 = extremely important* to *5 = not at all important* (e.g., have a college education, own a home, make a great deal of money, have a good-paying job, have a good reputation in the community, and save money for a rainy day); the higher the score the less conventional. Socioeconomic status consisted of two separate measures for mothers and fathers, *educational level* (actual years completed) and *occupational prestige* (based on a scale from 1 to 100 developed by Nakao & Treas, 1990). Except for mothers' and fathers' educational level (assessed at yr. 1) and occupational prestige (assessed at yrs. 1, 3, and 4), and adolescent tobacco use (assessed each year), all other study variables were measured only at the first three data-collection points (yrs. 1, 2, and 3). All study variables met the assumption of normality, with the exception of target and sibling tobacco use (which is not unusual for these variables).

For mothers and fathers, values for education (from yr. 1) and prestige (summed across yrs. 1, 3, and 4) each were trichotomizied, with *1 = low, 2 = medium, and 3 = high*. Summary variables for adolescent school performance, deviant values, conventional values, and the three parental childrearing behaviors, were each formed by categorizing participants as *0 = below* or *1 = above* the median at each wave, summing across waves, and adding a value of 1. The resultant continuous values ranged from *1 = never above the median*, to *4 = above the median at all 3 initial data collection points*. Similar procedures were used for the variables for father, mother, sibling, and peer tobacco use, except that categorization was based on *using* (1) and *not using* (0) tobacco at each wave.

RESULTS

This study uses Cox's proportional hazard model which is described in expression (1), where $h_0(t)$ denotes the main baseline hazard function, and x_{ik} denotes the value of the covariate k in the person i at time t:

$$h_i(t) = h_0(t) \exp\left[\sum_k b_k x_{ik}(t) \right]. \tag{1}$$

The dependent variable is the grade (time) when the adolescent first indicated use of tobacco during the previous year. The censoring criteria was 1 if the "event" occurred (i.e., adolescent used tobacco) by a specified grade and 0 if the adolescent did not use tobacco at any time through the last data collection point (12th grade). In other words, youth were "not censored" if they met the condition of smoking or chewing tobacco and "censored" if they never met this condition. In this research the covarites include: family context (i.e., family member tobacco use, parents' education and occupational prestige), associating with tobacco-using peers, and individual-level covarites (i.e., gender, school performance, deviant values, conventional values) on the risk of first tobacco use.

The first step in the analysis included information on all youth; a censoring value of 1 was defined if the adolescent smoked or chewed tobacco at any point in the study prior to or during 12th grade (N = 232) and 0 if he/she abstained (N = 167). The Partial Likelihood Estimates (Cox, 1975) of the selected parameters for the complete sample are presented in Table 1, Models 1-6. Due to the high correlation between parental measures, separate models were obtained using data for fathers and mothers. Statistically significant ratios at and above 1.00 are considered risk

factors; ratios of .99 and below are factors that protect against risk. Unless otherwise indicated (i.e., gender and conventional values), covariates are defined as high on the specified dimension.

Comparing tobacco users and abstiners in the complete sample, results for models containing father covariates (Table 1, Model 1) show greater risk for tobacco use if youth are male, have more sibling tobacco use, more associations with tobacco-using peers, and higher deviant values. For this model, protective factors include higher school grades and higher father occupational prestige. Results for mother covariates (Table 1, Model 2) show that male gender, tobacco-using peers, higher deviant values and lower conventional values are associated with risk of youth tobacco use, whereas protective factors include higher school performance and higher mother education. In these analyses, childrearing behaviors were not statistically significant factors in either the father or mother models. The models were acceptable as assessed by the Wald test.

The next series of analyses (also presented in Table 1) examined whether or not factors associated with tobacco use differed by youth age-group. Analyses compared early starters vs. abstainers and late starters vs. abstainers. For these two sets of analyses, covariates were entered in separate analyses with the two subsamples (early starters vs. abstainers, N = 317; late starters vs. abstainers, N = 249).

Results for early starters vs. abstainers using father covariates in the model (Table 1, Models 3) show risk and protective covariates are the same as for the complete sample. Compared with analyses of mother data for the complete sample, results for early starters vs. abstainers (Table 1, Model 4) added sibling tobacco involvement and deleted youth conventional values as significant covariates of tobacco use by youth. For late starters vs. abstainers using father data (Table 1, Model 5), three covariates remain statistically significant (gender, school performance, and deviant values), three covariates are no longer significant (father occupational prestige, sibling tobacco use, and peers associations), and one becomes significant (youth conventional values) in this model. For the late starters vs. abstainers, the data for the mothers (Table 1, Model 6) showed higher deviant values and fewer conventional values as risk factors and higher school performance as a protective factor.

Because adolescent gender was a significant risk factor in the first step of these analyses, we next obtained results separately for boys (N = 190) and girls (N = 209), again independently testing models containing father and mother covariates. We first present results using father data. As shown in Table 2, Model 1, findings for boys parallel those for the complete sample for four covariates: school performance, sibling tobacco use, peer associations, and deviant values; one covariate (occupational prestige) is no longer significant and another (father smoking) became significant. Results for girls (Table 2, Model 2) parallel those for the complete sample with the addition of father smoking and the deletion of father occupational prestige. Using mother data, findings for boys (Table 2, Model 3) correspond to those for the complete sample, except that mothers' education and youth conventional values are not significant. For girls (Table 2, Model 4), sibling tobacco use is added and youth conventional values is deleted. Except for fathers' negative affect with boys, none of the childrearing variables are statistically significant in Models 1-4. Additional analyses (Table 2, Models 5-10) show results for early and late starters separated by youth gender.

A series of post-hoc analyses were conducted in which the dependent variable was defined as *associating with tobacco-using peers*. The censoring criteria was 1 if the adolescent reported tobacco-using peers before a given grade and 0 if the adolescent reported no such peers through the last data collection point. First, using the complete sample (N = 399), comparisons were

made between youth with and without friends who used tobacco at any point in the data collection. For the complete sample, father model (see Table 3, Model 1), youth were at greater risk of associating with tobacco-using peers if they were male, their fathers had low occupational prestige, if their father smoked, if they held more deviant values, and if they used tobacco themselves. For the model with mother data (Table 3, Model 2), youth tobacco use and deviant values and mothers' positive affect were risk factors associated with having peers who smoked or chewed tobacco. The table also presents results for early and late starters. Except for models for late starter boys (risk rations not shown), all models fit the data well.

Next, separate analyses compared two subgroups: youth with tobacco-using peers in early adolescence (7th, 8th, and/or 9th grades) were compared to those with no such associations (N = 261) (Table 3, Models 3 & 5). Those with associations only in late adolescence (10th and/or 12th grades) were compared to those with no associations (N = 146) (Table 3, Models 4 & 6). Risk factors for early associations included the youths' use of tobacco and deviant values, and (for father models) the use of tobacco by fathers, whereas the only risk factor for associating with tobacco-using peers in late adolescence was deviant values (for father and mother models for the complete sample and for boys). Mothers' positive affect was the only childrearing covariate to emerge as statistically significant.

DISCUSSION

Youth deviant values and male gender are associated with greater risk for tobacco use throughout adolescence; school performance is an important protective factor. Tobacco-using siblings and peers are risk factors in early, but not in late, adolescence and for the complete sample. Low conventional values are associated with risk for tobacco use in late adolescence. When separated by gender, sibling tobacco involvement is a risk factor for girls, but not for boys.

Of particular interest in these analyses is the absence of direct associations between childrearing behaviors and adolescent tobacco involvement. On closer examination, however, positive affect appears as a protective factor for youth in analyses using mother data in the complete and the early starter groups.

These results are consistent with earlier discriminant function analyses that identified school performance and associating with friends who use tobacco as predictors of the category of adolescent tobacco involvement (abstainers, desisters, late starters, and continuous users) (Melby & Vargas, 1996). The present results extend earlier research, however, by separately examining covariates of tobacco use during early and late adolescence and by examining risk factors associated with having tobacco-using friends.

Identifying risk and protective factors associated with tobacco involvement during adolescence will assist efforts to develop effective strategies for prevention and intervention. In particular, knowledge of both similar and distinct factors associated with early and late initiation of tobacco use highlights the possible need for specific strategies to help prevent adolescent tobacco use in each age group. For example, the important role of friends among early but not among late adolescence tobacco initiators should be considered in prevention efforts.

Future research efforts also should explore other covariates that may be associated with adolescent tobacco involvement. Furthermore, because developmental changes may occur in parental behaviors, averaging across the data collection years may not capture salient effects of these behaviors. Additional analyses are needed in this area, as well as into factors associated with youth tobacco-using peer affiliations.

REFERENCES

CESAR (October 28, 1996). *Teens report cigarettes and marijuana easier to buy than beer.* CESAR Fax, 5, 42. Center for Substance Abuse Research, University of Maryland at College Park.

Cox, D. R. (1995). Partial likelihood, *Biometrika, 62*, 269-276.

Cox, D. R. (1972). Regression models and life tables. *Journal of the Royal Statistical Society*, Series B 34, 187-220.

Dobkin, P. L., Tremblay, R. E., Masse, L. C., & Vitaro, F. (1995). Individual and peer characteristics in predicting boys' early onset of substance abuse: A seven-year longitudinal study. *Child Development, 66,* 1198-2014.

Graham, J., Collins, L. M., Wugalter, S. E., Chung, N., & Hansen, W. B. (1991). Modeling transitions in latent-stage-sequential process: A substance prevention example. *Journal of Consulting and Clinical Psychology, 59,* 48-57.

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention, *Psychological Bulletin, 112,* 64-105.

Kandel, D. B., & Wu, P. (1995). The contributions of mothers and fathers to the intergenerational transmission of cigarette smoking in adolescence. *Journal of Research on Adolescence, 5,* 225-252.

Melby, J. N., & Vargas, D. (March, 1996). *Predicting patterns of adolescent tobacco use.* Paper presented at the biennial meetings of the Society for Research on Adolescence, Boston, MA.

Melby, J. N., Conger, R. D., Book, R., Rueter, M., Lucy, L., Repinski, D., Ahrens, K., Black, D., Brown, D., Huck, S., Mutchler, L., Rogers, S., Ross, J., Stavros, T. (1993). *The Iowa family interaction rating scales* (fourth edition). Unpublished manuscript. Iowa State University, Center for Family Research in Rural Mental Health, Ames.

Nakao, K. and Treas, J. 1990. *Computing 1989 Occupational Prestige Scores.* National Opinion Research Center, University of Chicago, Illinois.

Simons, R., Johnson, C., Beaman, J., Conger, R., & Whitbeck, L (1996). Parents and peers as mediators of the effects of community structure on adolescent problem behavior. *American Journal of Community Psychology, 24,* 145-171.

Yamaguchi, K. (1991). *Event History Analysis.* Applied Social Research Methods Series, Volume 28: SAGE Publications, Inc. Newbury Park, CA.

TABLE 1. RISK RATIOS FOR COVARIATES OF ADOLESCENT TOBACCO USE [a]

	Model 1 Father Complete	Model 2 Mother Complete	Model 3 Father Early	Model 4 Mother Early	Model 5 Father Late	Model 6 Mother Late
Male Gender	1.37*	1.34*	1.46*	1.37+	1.59+	1.40
School Performance	0.78***	0.80***	0.79**	0.81**	0.82*	0.82*
Deviant Values	1.35****	1.32****	1.36****	1.28**	1.36**	1.42**
Low Conventional Values	1.10	1.13*	1.09	1.11	1.28*	1.39**
Parent Tobacco	1.05	0.99	1.04	1.00	1.05	0.93
Sibling Tobacco	1.13*	1.11	1.19*	1.14+	1.00	1.02
Peer Tobacco	1.44****	1.46***	1.53****	1.57***	0.94	0.94
Parent Education	1.10	0.79*	1.12	0.78+	1.09	0.77
Parent Occupation	0.76*	1.06	0.71**	1.06	0.83	0.89
Management	1.01	0.88	1.06	0.84	0.84	0.94
Positive Affect	0.94	1.05	0.90	1.20	0.93	0.81
Negative Affect	0.94	0.99	0.94	0.99	0.90	0.90
Wald Test$_{12}$	151.93***	153.12***	120.45***	120.88***	30.24**	30.77**
N=	399	399	317	317	249	249

[a] Note: Ratios ≤ .99 indicate protective factors; ratios ≥ 1.00 indicate risk factors.
+$p \leq$ .10. *$p \leq$ .05. **$p \leq$ .001. ***$p \leq$ .0001.

TABLE 2. RISK RATIOS FOR COVARIATES OF ADOLESCENT TOBACCO USE BY YOUTH GENDER[a]

	Father Complete		Mother Complete		Father Early		Mother Early		Father Late	Mother Late
	Model 1 Boys	Model 2 Girls	Model 3 Boys	Model 4 Girls	Model 5 Boys	Model 6 Girls	Model 7 Boys	Model 8 Girls	Model 9 Girls	Model 10 Girls
School Performance	0.80**	0.76**	0.80**	0.82*	0.84+	0.78+	0.81*	0.85	0.73*	0.78+
Deviant Values	1.30**	1.43**	1.28**	1.46***	1.41**	1.36*	1.32*	1.36*	1.66**	1.71***
Low Conventional Values	1.00	1.18	1.08	1.14	1.04	1.17	1.10	1.07	1.47*	1.50**
Parent Tobacco	0.99	1.13+	0.96	1.02	0.98	1.21*	0.93	1.15	1.01	0.85
Sibling Tobacco	1.04	1.35**	0.98	1.33**	1.09	1.38***	0.98	1.47**	1.06	1.07
Peer Tobacco	1.42***	1.60***	1.40***	1.60***	1.46**	1.82***	1.40**	1.83***	1.03	1.02
Parent Education	1.13	1.02	0.86	0.70	1.26	0.91	0.85	0.64+	1.13	0.67
Parent Occupation	0.61***	1.11	0.96	1.14	0.58**	0.99	0.94	1.26	1.20	1.20
Management	1.00	0.97	0.84	0.94	1.00	1.14	0.77+	0.95	0.72	0.89
Positive Affect	0.81*	1.08	1.00	1.17	0.78*	1.11	1.07	1.46	1.03	1.16
Negative Affect	0.79*	1.07	0.91	1.13	0.79*	1.15	0.91	1.22	0.83	1.03
Wald Test[11]	70.71***	80.39***	59.12***	81.87***	53.23***	68.28***	46.03***	66.54***	21.15*	22.73*
N=	190	209	190	209	148	169	148	169	150	150

[a] Note: Ratios $\leq$ .99 indicate protective factors; ratios $\geq$ 1.00 indicate risk factors

[b] Note: Risk ratios for the father-boy model (WaldTest$_{11}$ = 13.96, n.s.) and mother-boy model (Wald Test$_{11}$ = 15.09, n.s.) are not presented due to poor fit (N = 99).

+p $\leq$ .10. *p.05. $\leq$ **p $\leq$ .001. ***p $\leq$ .0001.

TABLE 3. RISK RATIOS FOR COVARIATES OF YOUTH TOBACC-USING PEERS[a]

	Model 1 Father Complete	Model 2 Mother Complete	Model 3 Father Early	Model 4 Mother Early	Model 5 Father Late	Model 6 Mother Late
Adolescent Gender	1.21+	1.18	1.18	1.19	1.40	1.32
School Performance	0.95	0.97	0.96	0.96	0.93	0.93
Deviant Values	1.24***	1.22***	1.18*	1.17*	1.38*	1.39*
Low Conventional Values	1.03	1.03	1.02	1.02	1.12	1.17
Parent Tobacco	1.11**	1.04	1.12*	1.03	1.11	1.01
Sibling Tobacco	1.03	1.03	1.06	1.04	0.98	0.99
Adolescent Tobacco	1.38***	1.40***	1.20*	1.22*	1.34	1.44
Parent Education	1.02	1.03	1.05	1.10	0.92	0.77
Parent Occupation	0.81*	0.93	0.90	0.94	0.90	1.09
Management	0.98	0.94	1.01	0.94	1.00	0.90
Positive Affect	0.94	0.86*	0.93	0.85*	0.78	0.90
Negative Affect	0.93	0.95	0.91	0.92	0.90	0.93
Wald Test$_{12}$	21.93*	20.45+	54.77***	54.61***	21.93*	20.45+
N=	399	399	317	317	249	249

[a]Note: Ratios $\leq$ .99 indicates protective factors; ratios $\geq$ 1.00 indicate risk factors.
+p $\leq$ .10. *p $\leq$ .05. **p $\leq$ .001. ***p $\leq$ .0001.

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